



# UNITED STATES PATENT AND TRADEMARK OFFICE

*Bob*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,832	11/04/2003	Katsutoshi Izumi	031258	5574
23850	7590	07/07/2005		
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP 1725 K STREET, NW SUITE 1000 WASHINGTON, DC 20006				EXAMINER JACKSON JR, JEROME
			ART UNIT 2815	PAPER NUMBER

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/699,832	IZUMI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jerome Jackson Jr.	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 03 May 2005.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3-5 and 10-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3-5 and 10-13 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/3/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,3-5,10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Linthicum, of record.

The previous rejection still applies. Column 3 lines 59-62 of Linthicum recite a buffer layer of AlN or GaN. Furthermore, regardless whether the buffer is GaN or AlN there is a GaN layer grown on the SiC layer. The claim does not state direct contact between the GaN and SiC layers. Likewise claims 3 and 4 are rejected as there are silicon nitride or silicon oxide layers alongside the silicon carbide layers in Linthicum. There is no recitation of direct contact between layers. Claims 12 and 13 are rejected as the growth of GaN from both sides of the region above the nitride or oxide layer define a non-monocrystalline or "polycrystalline" region of GaN at least where the two growth regions meet. The specification recites that growth over the nitride or oxide is also "terraced" or equivalently "polysrystalline. In any event, there is inherently polycrystalline GaN growth over the oxide or nitride regions for the same reasons there is polycrystalline growth in applicant's structure. The growth of GaN over oxide or nitride layers apparently results in polycrystalline GaN growth over the nitride or oxide. Applicant's description of the phenomenon should pertain to Linthicum as well because similar growth method is disclosed. Applicant's recognition of such structure is not patentable unless applicant can prove that such structure does not inherently result in Linthicum. There is no exact magnitudes of

"polycrystalline" grain size or other structure which would in any way structurally distinguish over Linthicum.

Applicant's arguments filed 5/3/05 have been fully considered but they are not persuasive. The present claims are broadly written. Furthermore, as stated above, Linthicum teaches a buffer of GaN as well as AlN.

Arguments that GaN grows differently on nitride than on carbide are unconvincing of patentability because regardless of such statements the claimed structure does not structurally distinguish over Linthicum. Moreover, stating that GaN grows differently over nitride reinforces the supposition that there is polycrystalline growth of GaN over the nitride regions of Linthicum.

Arguments regarding selective etching are unconvincing of patentability as the claims do not recite such language and furthermore process limitations are not particularly relevant in claims drawn to structure. These are not process claims.

Arguments regarding an "interlayer" are unpersuasive of patentability as no such language is present in the claims and furthermore such language would be considered a mere label undistinguishing over the SiC structure of Linthicum.

Arguments that Linthicum does not teach integration of other devices is not persuasive because applicant's claims do not recite such devices, and furthermore, Linthicum is clearly intended for fabrication of electronic devices.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2815

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

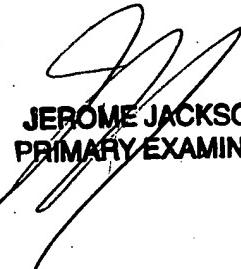
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerome Jackson Jr. whose telephone number is 571 272 1730. The examiner can normally be reached on t-th 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 571 272 1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2815

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jj



JEROME JACKSON  
PRIMARY EXAMINER